

FORM PTO-1390 (REV 11-2000)	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTORNEY'S DOCKET NUMBER <b>2365-40</b>
<b>TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371</b>		U.S. APPLICATION NO. (If known, see 37 C.F.R. 1.5) <b>10/069220</b> Unknown
INTERNATIONAL APPLICATION NO. <b>PCT/FR00/02416</b>	INTERNATIONAL FILING DATE <b>1 September 2000</b>	PRIORITY DATE CLAIMED <b>2 September 1999</b>
TITLE OF INVENTION <b>COSMETIC COMPOSITION BASED ON PARTIALLY NEUTRALIZED WATER-SOLUBLE UNPOLYMERIZED OR RELATIVELY UNPOLYMERIZED ORGANOSILICON COMPOUNDS</b>		
APPLICANT(S) FOR DO/EO/US <b>ROLLAT-CORVOL</b>		
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:		
1. <input checked="" type="checkbox"/> This is a <b>FIRST</b> submission of items concerning a filing under 35 U.S.C. 371. 2. <input type="checkbox"/> This is a <b>SECOND</b> or <b>SUBSEQUENT</b> submission of items concerning a filing under 35 U.S.C. 371. 3. <input checked="" type="checkbox"/> This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below. 4. <input checked="" type="checkbox"/> The U.S. has been elected by the expiration of 19 months from the priority date (Article 31). 5. A copy of the International Application as filed (35 U.S.C. 371(c)(2)). a. <input type="checkbox"/> is attached hereto (required only if not communicated by the International Bureau). b. <input checked="" type="checkbox"/> has been communicated by the International Bureau. c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US). 6. <input checked="" type="checkbox"/> An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)). a. <input checked="" type="checkbox"/> is attached hereto. b. <input type="checkbox"/> has been previously submitted under 35 U.S.C. 154(d)(4). 7. <input type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)). a. <input type="checkbox"/> are attached hereto (required only if not communicated by the International Bureau). b. <input type="checkbox"/> have been communicated by the International Bureau. c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has <b>NOT</b> expired. d. <input type="checkbox"/> have not been made and will not be made. 8. <input type="checkbox"/> An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)). 9. <input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). 10. <input type="checkbox"/> A English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).  <b>Items 11 To 20 below concern document(s) or information included:</b> 11. <input type="checkbox"/> An Information Disclosure Statement under 37 C.F.R. 1.97 and 1.98. 12. <input checked="" type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 C.F.R. 3.28 and 3.31 is included. 13. <input checked="" type="checkbox"/> A FIRST preliminary amendment. 14. <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment. 15. <input type="checkbox"/> A substitute specification. 16. <input type="checkbox"/> A change of power of attorney and/or address letter. 17. <input type="checkbox"/> A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821-1.825. 18. <input type="checkbox"/> A second copy of the published international application under 35 U.S.C. 154(d)(4). 19. <input type="checkbox"/> A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4). 20. <input checked="" type="checkbox"/> Other items or information. PTO-1449 and copy of International Search Report		

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Unknown

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2365-40

21. ☒ The following fees are submitted:**BASIC NATIONAL FEE (37 C.F.R. 1.492(a)(1)-(5):**

- Neither international preliminary examination fee (37 C.F.R. 1.482) nor international search fee (37 C.F.R. 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO .....\$1040.00
- International preliminary examination fee (37 C.F.R. 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO.....\$890.00
- International preliminary examination fee (37 C.F.R. 1.482) not paid to USPTO but international search fee (37 C.F.R. 1.445(a)(2)) paid to USPTO .....\$740.00
- International preliminary examination fee (37 C.F.R. 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4).....\$710.00
- International preliminary examination fee (37 C.F.R. 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4).....\$100.00

**ENTER APPROPRIATE BASIC FEE AMOUNT =**
 Surcharge of \$130.00 for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 C.F.R. 1.492(e)).

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE			
Total Claims	9	-20 =	0	X	\$18.00	\$ 0.00
Independent Claims	1	-3 =	0	X	\$84.00	0.00
MULTIPLE DEPENDENT CLAIMS(S) (if applicable)					\$280.00	\$ 0.00
<b>TOTAL OF ABOVE CALCULATIONS =</b>						<b>\$ 890.00</b>
<input checked="" type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2.						0.00
<b>SUBTOTAL =</b>						<b>\$ 890.00</b>
Processing fee of \$130.00, for furnishing the English Translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 C.F.R. 1.492(f)).					+	0.00
<b>TOTAL NATIONAL FEE =</b>						<b>\$ 890.00</b>
Fee for recording the enclosed assignment (37 C.F.R. 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 C.F.R. 3.28, 3.31). \$40.00 per property					+	\$ 40.00
Fee for Petition to Revive Unintentionally Abandoned Application (\$1280.00 - Small Entity = \$640.00)						\$ 0.00
<b>TOTAL FEES ENCLOSED =</b>						<b>\$ 930.00</b>
					Amount to be:	
					refunded	\$
					Charged	\$

- a. ☒ A check in the amount of \$930.00 to cover the above fees is enclosed.
- b. ☐ Please charge my Deposit Account No. 14-1140 in the amount of \$\_\_\_\_\_ to cover the above fees. A duplicate copy of this form is enclosed.
- c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 14-1140. A duplicate copy of this form is enclosed.
- d. ☒ The entire content of the foreign application(s), referred to in this application is/are hereby incorporated by reference in this application.

**NOTE:** Where an appropriate time limit under 37 C.F.R. 1.494 or 1.495 has not been met, a petition to revive (37 C.F.R. 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

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SIGNATURE

B. J. Sadoff

NAME

36,663

REGISTRATION NUMBER

February 22, 2002

Date

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

**ROLLAT-CORVOL**

Atty. Ref.: 2365-40

Serial No. Unknown

Group:

National Phase of: **PCT/FR00/02416**

International Filing Date: **1 September 2000**

Filed: **February 22, 2002**

Examiner:

For: **COSMETIC COMPOSITION BASED ON PARTIALLY  
NEUTRALIZED WATER-SOLUBLE UNPOLYMERIZED  
OR RELATIVELY UNPOLYMERIZED ORGANOSILICON  
COMPOUNDS**

\* \* \* \* \*

**February 22, 2002**

Assistant Commissioner for Patents  
Washington, DC 20231

Sir:

**PRELIMINARY AMENDMENT**

Preliminarily amend the above-identified application as follows:

**IN THE SPECIFICATION**

Page 1, after the title insert the following:

-- This application is the US national phase of international application

PCT/FR00/02416 filed September 1, 2000 which designated the U.S. --.

**IN THE CLAIMS**

Amend the claims as follows:

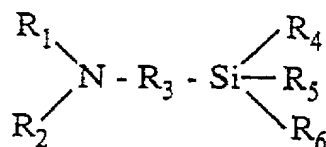
3. (Amended) The composition as claimed in claim 1, characterized in that the basic chemical function of the organosilicon compounds is chosen from primary, secondary and tertiary amines.

4. (Amended) The composition as claimed in claim 1, characterized in that the hydrolyzable groups are chosen from alkoxy, aryloxy and halogen groups.

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5. (Amended) The cosmetic composition as claimed in claim 1, characterized in that the unpolymerized or relatively unpolymerized organosilicon compound(s) is (are) chosen from the compounds of formula:



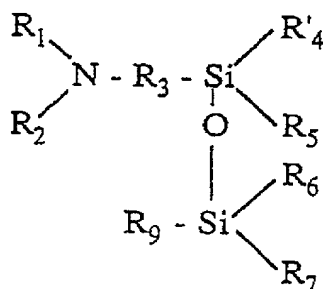
in which:

$R_4$  represents a halogen or a group  $OR'$  or  $R'_1$ ;

$R_5$  represents a halogen or a group  $OR''$  or  $R'_2$ ;

$R_6$  represents a halogen or a group  $OR'''$  or  $R'_3$ ;

$R_1$ ,  $R_2$ ,  $R_3$ ,  $R'$ ,  $R''$ ,  $R'''$ ,  $R'_1$ ,  $R'_2$  and  $R'_3$  represent, independently of each other, a saturated or unsaturated, linear or branched hydrocarbon-based group optionally bearing additional chemical groups,  $R_1$ ,  $R_2$ ,  $R'$ ,  $R''$  and  $R'''$  also possibly denoting hydrogen, at least two of the groups  $R_4$ ,  $R_5$  and  $R_6$  being other than groups  $R'_1$ ,  $R'_2$  and  $R'_3$ ; and



in which:

$R_1$ ,  $R_2$ ,  $R_3$ ,  $R_5$  and  $R_6$  are defined as above;

$R'_4$  represents a halogen or a group  $OR_{11}$ ;

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$R_7$  represents a halogen or a group  $OR_{10}$  or  $R''_1$ ;

$R_9$  represents a halogen or a group  $OR_8$ ,  $R''_2$  or  $R_3NR_1R_2$ ;

$R''_1$ ,  $R''_2$ ,  $R_8$ ,  $R_{10}$  and  $R_{11}$  represent a saturated or unsaturated, linear or branched hydrocarbon-based group optionally bearing additional chemical groups, the groups  $R_{11}$ ,  $R_{10}$  and  $R_8$  also possibly denoting hydrogen; at least one of the groups  $R_6$ ,  $R_7$  and  $R_9$  denoting a halogen or a group  $OR''$ ,  $OR_{10}$  or  $OR_8$ .

7. (Amended) The composition as claimed in claim 1, characterized in that the sulfuric acid salts are chosen from alkali metal sulfates and ammonium sulfate.

8. (Amended) The composition as claimed in claim 1, characterized in that it is a haircare product.

**REMARKS**

The claims have been amended, without prejudice, to reduce the filing fees.

An early and favorable Action on the merits is requested.

Respectfully submitted,

**NIXON & VANDERHYE P.C.**

By: 

**B. J. Sadoff**

Reg. No. **36,663**

**BJS:Imy**

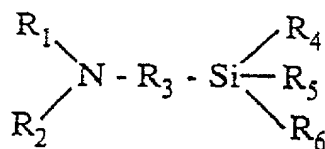
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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

3. (Amended) The composition as claimed in claim 1 [or 2], characterized in that the basic chemical function of the organosilicon compounds is chosen from primary, secondary and tertiary amines.

4. (Amended) The composition as claimed in [any one of claims 1 to 3] claim 1, characterized in that the hydrolyzable groups are chosen from alkoxy, aryloxy and halogen groups.

5. (Amended) The cosmetic composition as claimed in [any one of the preceding claims] claim 1, characterized in that the unpolymerized or relatively unpolymerized organosilicon compound(s) is (are) chosen from the compounds of formula:



in which:

R<sub>4</sub> represents a halogen or a group OR' or R'<sub>1</sub>;

R<sub>5</sub> represents a halogen or a group OR'' or R'<sub>2</sub>;

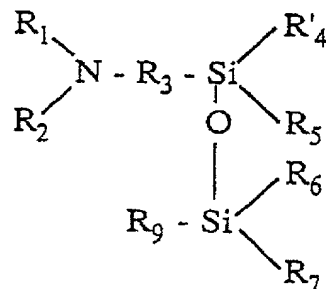
R<sub>6</sub> represents a halogen or a group OR''' or R'<sub>3</sub>;

R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R', R'', R''', R'<sub>1</sub>, R'<sub>2</sub> and R'<sub>3</sub> represent, independently of each other, a saturated or unsaturated, linear or branched hydrocarbon-based group optionally bearing additional chemical groups, R<sub>1</sub>, R<sub>2</sub>, R', R'' and R''' also possibly denoting

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hydrogen, at least two of the groups  $R_4$ ,  $R_5$  and  $R_6$  being other than groups  $R'_1$ ,  $R'_2$  and  $R'_3$ ; and



in which:

$R_1$ ,  $R_2$ ,  $R_3$ ,  $R_5$  and  $R_6$  are defined as above;

$R'_4$  represents a halogen or a group  $OR_{11}$ ;

$R_7$  represents a halogen or a group  $OR_{10}$  or  $R''_1$ ;

$R_9$  represents a halogen or a group  $OR_8$ ,  $R''_2$  or  $R_3NR_1R_2$ ;

$R''_1$ ,  $R''_2$ ,  $R_8$ ,  $R_{10}$  and  $R_{11}$  represent a saturated or unsaturated, linear or branched hydrocarbon-based group optionally bearing additional chemical groups, the groups  $R_{11}$ ,  $R_{10}$  and  $R_8$  also possibly denoting hydrogen; at least one of the groups  $R_6$ ,  $R_7$  and  $R_9$  denoting a halogen or a group  $OR'''$ ,  $OR_{10}$  or  $OR_8$ .

7. (Amended) The composition as claimed in [any one of the preceding claims] claim 1, characterized in that the sulfuric acid salts are chosen from alkali metal sulfates and ammonium sulfate.

8. (Amended) The composition as claimed in [any one of the preceding claims] claim 1, characterized in that it is a haircare product.

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- 1 -

**Cosmetic composition based on partially neutralized,  
water-soluble unpolymerized or relatively unpolymerized  
organosilicon compounds**

5 The present invention relates generally to aqueous cosmetic compositions, in particular for treating the hair, comprising unpolymerized or relatively unpolymerized water-soluble organosilicon compounds.

10 It is common practice to use organic compounds such as polymers to produce cosmetic compositions for treating the hair. For example, polymers that, on drying, give solid materials are used to fix the hairstyle in a shape. Such materials are also used to give shape holding  
15 effects. Polymer compounds, such as polysiloxanes, are also used to give care effects to hair, particularly hair that is damaged or difficult to disentangle. The cosmetic compositions containing these polymers are applied to the hair, which is left to dry or is rinsed before proceeding  
20 to the drying step.

The use of polymer compounds presents several drawbacks.

25 The first drawback lies in the fact that, when the polymers are used in compositions beyond a certain concentration, the compositions obtained are difficult to apply due to the increase in the viscosity of the composition. This difficulty in applying the compositions results in the hair being overloaded in certain areas and  
30 thus leads to cosmetic defects, and also means that certain parts of the hair receive less of the compositions, which, in the end, induces a lessened effect on these parts.

35 The second drawback lies in the fact that these compositions are occasionally difficult to use. The reason for this is that polymer compounds with a low water solubility require the use of an organic solvent or



a mixture of organic solvents. The use of organic solvent entails several problems, such as environmental problems and problems of the effect on the cosmetic quality of the hair.

To overcome these drawbacks, attention has thus turned toward the use of polymer compounds that have been rendered partially water-soluble. Thus, certain polymer compounds may be used in water without adding any cosolvent. In this case, the limitation lies in the fact that these polymer compounds are partially, or even totally, removed by rinsing the hair. Consequently, in this case, the effect due to the polymer compounds is very limited after rinsing. Ultimately, this limits the effect of rinse-out treatments (shampooing or conditioning), but also reduces the advantage of such compositions used in leave-in mode (lacquers, mousses, hairsetting lotions, etc.) since the user loses the effect acquired by the treatment when he washes his hair.

Efforts have thus been made to find compounds or formulate cosmetic compositions that may be used in water and that show remanence of their effect when the hair is rinsed.

Thus, US patent No 4 344 763 (Gillette) describes cosmetic compositions comprising an organosiloxane monomer such as an aminoalkylalkoxysilane and an organic titanate dissolved in an alcohol.

More specifically, said patent describes a process for shaping the hair, which consists in wetting it with water and then applying a solution containing, in isopropanol, from 0.5% to 15% by weight of an aminoalkylalkoxysilane and from 0.005% to 1.5% by weight of an organic titanate, and then in placing the hair in the desired shape.

According to this process, it is particularly recommended to keep the isopropanol solution protected against any moisture.

5 The document "Nouveaux types de fixateurs pour cheveux ayant des propriétés semi-permanentes [Novel types of hair fixing agents with semi-permanent-waving properties]", M. SARDO - Parfum Cosmétique Saveur France, Vol. 2, No 5 (1972) also describes compositions of this  
10 type.

Most of the products are not effective, since the aqueous compositions produced are unstable.

15 Patent EP-113 992 also discloses a process for simultaneously fixing and conditioning the hair using a composition, which is stable in the absence of moisture, containing (A) a siloxane oligomer containing at least one nitrogen-hydrogen bond, and (B) a readily  
20 hydrolyzable anhydrous additive chosen from titanates, zirconates, vanadates and germanates, and mixtures thereof.

The solvent for the composition is an aliphatic  
25 hydrocarbon or an aliphatic halohydrocarbon, preferably 1,1,1-trichloroethane.

After applying the composition to the hair, the hair is placed in a humid atmosphere in order to bring about the  
30 crosslinking of the siloxane oligomer and the readily hydrolyzable anhydrous additive.

There is thus a need for a stable cosmetic composition, in particular for treating the hair, which is essentially  
35 aqueous and which makes it possible to obtain a sufficient cosmetic effect, in particular for the hair, in rinse-out or leave-in mode.

One subject of the present invention is thus stable aqueous cosmetic compositions, in particular cosmetic hair treatment and haircare compositions, which overcome the drawbacks of the prior art.

More specifically, one subject of the present invention is stable aqueous cosmetic hair treatment and haircare compositions that give the hair a long-lasting styling effect and a pleasant feel.

The Applicant has found, surprisingly, that it is possible to formulate cosmetic compositions that do not require the use of an organic solvent and that have an effective, rinse-resistant effect, without the risk of problems of loaded hair in the event of superposition, by using in these compositions unpolymerized or relatively unpolymerized, water-soluble organosilicon compounds comprising at least one basic chemical function and partially neutralized with specific agents.

It has been found that applying such compositions produces pronounced cosmetic effects, with no problems in the event of superposition, whose effects withstand rinsing and washing.

According to the invention, the cosmetic compositions, in particular for treating the hair, comprise, in a cosmetically acceptable aqueous medium, at least 0.05% by weight, relative to the total weight of the composition, of one or more unpolymerized or relatively unpolymerized water-soluble organosilicon compounds chosen from organosilanes comprising one silicon atom and organosiloxanes comprising two or three silicon atoms, the organosilicon compounds also comprising at least one basic chemical function and at least two hydrolyzable or hydroxyl groups per molecule, characterized in that it comprises an amount of a neutralizing agent chosen from sulfuric acid, sulfuric acid salts and mixtures thereof,

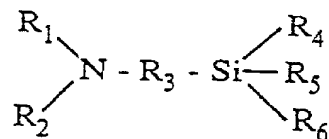
such that the unpolymerized or relatively unpolymerized organosilicon compounds are neutralized to a proportion of 1/1000 to 99/100 and preferably from 1/100 to 8/10.

5 The organosilicon compounds according to the invention are capable of forming, in aqueous medium, a non-hybrid compound, after self-condensation and evaporation of the support. The expression "non-hybrid compound" means a  
10 compound that is chemically homogeneous with regard to silicon, that is to say that it contains no other additional metallic or organometallic species.

The unpolymerized or relatively unpolymerized organosilicon compounds that are useful in compositions  
15 of the present invention are chosen from water-soluble organosilanes comprising one silicon atom and water-soluble organosiloxanes comprising two or three silicon atoms, preferably two silicon atoms. They must also comprise at least one basic chemical function, and  
20 preferably only one basic chemical function. The basic chemical function may be any function that gives the silicon compound a basic nature without harming its solubility in water and is preferably an amine function such as a primary, secondary or tertiary amine function.  
25 The basic chemical function of the silicon compounds according to the invention may optionally comprise other functions such as, for example, another amine function, an acid function or a halogen function.

30 The organosilicon compounds that are useful in the compositions of the present invention also comprise at least two hydrolyzable or hydroxyl groups per silicon atom. The hydrolyzable groups are preferably alkoxy, aryloxy or halogen groups. They may also optionally  
35 comprise other chemical functions such as acid or amine functions.

The organosilanes that are preferred according to the invention correspond to the formula:

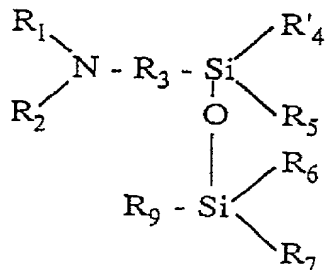


in which:

- 5         $R_4$  represents a halogen or a group  $OR'$  or  $R'_1$ ;  
        $R_5$  represents a halogen or a group  $OR''$  or  $R'_2$ ;  
        $R_6$  represents a halogen or a group  $OR'''$  or  $R'_3$ ;  
       and  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R'$ ,  $R''$ ,  $R'''$ ,  $R'_1$ ,  $R'_2$  and  $R'_3$   
 10        represent, independently of each other, a saturated or  
       unsaturated, linear or branched hydrocarbon-based group  
       optionally bearing additional chemical groups such as  
       acid or amine groups,  $R_1$ ,  $R_2$ ,  $R'$ ,  $R''$  and  $R'''$  also  
       possibly denoting hydrogen, and  
       at least two of the groups  $R_4$ ,  $R_5$  and  $R_6$  being other  
 15        than groups  $R'_1$ ,  $R'_2$  and  $R'_3$ .

- Preferably,  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R'$ ,  $R''$  and  $R'''$ ,  $R'_1$ ,  $R'_2$  and  $R'_3$   
 represent a  $C_1$  to  $C_{12}$  alkyl group, a  $C_5$  to  $C_{14}$  aryl group,  
 a  $(C_1$  to  $C_8)$ alkyl( $C_5$  to  $C_{14})$ aryl group and a  $(C_5$  to  
 20         $C_{14})$ aryl( $C_1$  to  $C_8)$ alkyl group; and  $R_3$  is preferably a  $C_1$  to  
        $C_{12}$  alkyl group, a  $C_5$  to  $C_{14}$  aryl group, a  $(C_1$  to  
        $C_8)$ alkyl( $C_5$  to  $C_{14})$ aryl group and a  $(C_5$  to  $C_{14})$ aryl( $C_1$  to  
        $C_8)$ alkyl group.

- 25        The organosiloxanes that are preferred in the  
       compositions of the present invention may be represented  
       by the formula:



in which:

$R_1, R_2, R_3, R_5$  and  $R_6$  are defined as above;

$R'_4$  represents a halogen or a group  $OR_{11}$ ;

$R_7$  represents a halogen or a group  $OR_{10}$  or  $R''_1$ ;

$R_9$  represents a halogen or a group  $OR_8, R''_2$  or

5  $R_3NR_1R_2$ ;

$R''_1, R''_2, R_8, R_{10}$  and  $R_{11}$  represent a saturated or unsaturated, linear or branched hydrocarbon-based group optionally bearing additional chemical groups such as basic solubilizing groups;

10  $R_{11}, R_{10}$  and  $R_8$  also possibly denoting hydrogen.

Preferably,  $R''_1, R''_2, R_8$  or  $R_{10}$  and  $R_{11}$  represent a  $C_1$  to  $C_{12}$  alkyl group, a  $C_5$  to  $C_{14}$  aryl group, a  $(C_1$  to  $C_8)$ alkyl( $C_5$  to  $C_{14}$ )aryl group and a  $(C_5$  to  $C_{14})$ aryl( $C_1$  to  $C_8)$ alkyl group.

At least one of the groups  $R_6, R_7$  and  $R_9$  denotes a halogen or a group  $OR'''$ ,  $OR_{10}$  or  $OR_8$ .

20 Preferably, the halogen is chlorine.

One important aspect of the compositions of the invention is that the unpolymerized or relatively unpolymerized organosilicon compounds are partially neutralized with the aid of a neutralizing agent or a pH regulator chosen from sulfuric acid, sulfuric acid salts and mixtures thereof, such that the neutralization reaches 1/1000 to 99/100 and better still from 1/100 to 8/10.

30 The sulfuric acid salts are preferably alkali metal sulfates, in particular sodium sulfate, and ammonium sulfate.

35 This partial neutralization of the unpolymerized or relatively unpolymerized organosilicon compounds of the compositions of the invention takes on an important aspect as regards obtaining the desired properties for the compositions.

Another important aspect of the compositions according to the invention is that the organosilicon compounds, the pH regulators and also the other constituents of the composition are chosen such that this composition contains large amounts of unpolymerized or relatively unpolymerized organosilicon compounds, that is to say that they comprise one, two or three silicon atoms. Thus, it is necessary for the composition to contain, relative to the total weight of the composition, at least 0.05% of unpolymerized or relatively unpolymerized organosilicon compounds, and preferably at least 0.5% and possibly ranging up to 50% by weight.

The content of the unpolymerized or relatively unpolymerized organosilicon compounds according to the invention is determined by the usual analytical methods such as silicon-29 and proton NMR spectroscopy, and by chromatography.

The compositions according to the invention are aqueous compositions. However, it is possible, for example for the use of adjuvants, to add a cosolvent such as an alcohol or a ketone, for example ethyl alcohol or acetone.

In a known manner, all the compositions of the invention may contain adjuvants that are common in cosmetics, such as oils, waxes or other common fatty substances; standard gelling agents and/or thickeners; emulsifiers; moisturizers; emollients, sunscreens; hydrophilic or lipophilic active agents such as ceramides; free-radical scavengers; surfactants; polymers; proteins; bactericides; sequestering agents; antidandruff agents; antioxidants; preserving agents; fragrances; fillers; dyestuffs.

The amounts of these various adjuvants are those conventionally used in the field under consideration.

Needless to say, a person skilled in the art will take  
5 care to select the optional compound(s) added to the  
composition according to the invention, such that the  
advantageous properties intrinsically associated with the  
composition in accordance with the invention are not, or  
are not substantially, adversely affected by the  
10 envisaged addition.

The compositions according to the invention may be used  
in rinse-out or leave-in mode.

15 The compositions according to the invention may be in any  
form that is suitable for topical application, especially  
in the form of solutions of the lotion or serum type; in  
the form of aqueous gels; in the form of emulsions  
obtained by dispersing a fatty phase in an aqueous phase  
20 (O/W) or, conversely, (W/O), of more or less thickened  
liquid consistency such as more or less unctuous milks  
and creams.

25 These compositions are prepared according to the usual  
methods.

30 The compositions according to the invention are  
preferably used as hair products, especially for holding  
the hairstyle or for shaping the hair. They may also give  
the hair a temporary coloration, or may protect the hair  
against the effects of UV radiation, while at the same  
time providing properties of holding or fixing the hair.

35 The hair compositions according to the invention are  
preferably styling products such as hairsetting gels or  
lotions, blow-drying lotions and fixing and styling  
compositions such as lacquers or sprays.



The lotions may be packaged in various forms, especially in vaporizers, in pump-dispenser bottles or in aerosol containers to provide an application of the composition in vaporized form or in the form of a mousse. Such packaging forms are indicated, for example, when it is desired to obtain a spray or mousse for fixing or treating the hair.

A subject of the present invention is also the use of the composition according to the invention in a process for treating the hair, in order to hold and/or colour it.

According to one embodiment of this process, the composition is applied to rinsed or unrinsed hair, preferably in the form of a spray, either using a pump-dispenser bottle or using an aerosol.

After spraying over the head of hair, the composition is left to act and to dry.

The hair may be rinsed after the composition has been applied.

The hair may be placed in the desired shape, either before the application or immediately after.

The drying time may be variable and depends on the nature of the composition.

After combing, the hair has a very pleasant feel quality.

The invention is illustrated by the examples which follow:

EXAMPLE 1

The four formulations below were prepared:

<u>Compo-</u> <u>sitions</u>	<u>Unpolymerized or rela-</u> <u>tively unpolymerized</u> <u>water-soluble silicon</u> <u>compound</u>	<u>Neutralizing</u> <u>agent</u>	<u>Water</u>
	Aminopropyltriethoxy- silane (g per 100 g of composition)	Amount of neutral- ization (normality) relative to the amount of soluble silane 0.5	
1	12 g	Hydrochloric acid	qs 100 g
2	12 g	Sulfuric acid	qs 100 g

After applying the compositions to the hair and drying, compositions 1 and 2 lead to films having the following characteristics:

Composition 1: homogeneous, transparent, supple, nonbrittle film.

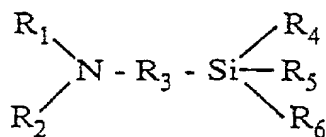
Composition 2: homogeneous, transparent, very rigid, brittle film.

Homogeneous, rigid, brittle films are needed in order to obtain good cosmetic effects.

## CLAIMS

1. A cosmetic composition comprising, in a cosmetically acceptable aqueous medium, at least 0.05% by weight, relative to the total weight of the composition, of one or more unpolymerized or relatively unpolymerized water-soluble organosilicon compounds chosen from organosilanes comprising a silicon atom and organosiloxanes comprising two or three silicon atoms, these organosilicon compounds also comprising at least one basic chemical function and at least two hydrolyzable or hydroxyl groups per molecule, said composition being characterized in that it comprises an amount of a neutralizing agent chosen from sulfuric acid, sulfuric acid salts and mixtures thereof, such that the unpolymerized or relatively unpolymerized organosilicon compounds are neutralized to a proportion of 1/1000 to 99/100 and preferably from 1/100 to 8/10.
2. The cosmetic composition as claimed in claim 1, characterized in that the unpolymerized or relatively unpolymerized water-soluble organosilicon compounds represent at least 0.5% and up to 50% by weight of the composition.
3. The composition as claimed in claim 1 or 2, characterized in that the basic chemical function of the organosilicon compounds is chosen from primary, secondary and tertiary amines.
4. The composition as claimed in any one of claims 1 to 3, characterized in that the hydrolyzable groups are chosen from alkoxy, aryloxy and halogen groups.
5. The cosmetic composition as claimed in any one of the preceding claims, characterized in that the unpolymerized or relatively unpolymerized

organosilicon compound(s) is (are) chosen from the compounds of formula:



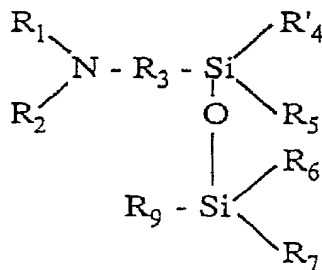
in which:

$R_4$  represents a halogen or a group  $OR'$  or  $R'_1$ ;

$R_5$  represents a halogen or a group  $OR''$  or  $R'_2$ ;

$R_6$  represents a halogen or a group  $OR'''$  or  $R'_3$ ;

$R_1$ ,  $R_2$ ,  $R_3$ ,  $R'$ ,  $R''$ ,  $R'''$ ,  $R'_1$ ,  $R'_2$  and  $R'_3$  represent, independently of each other, a saturated or unsaturated, linear or branched hydrocarbon-based group optionally bearing additional chemical groups,  $R_1$ ,  $R_2$ ,  $R'$ ,  $R''$  and  $R'''$  also possibly denoting hydrogen, at least two of the groups  $R_4$ ,  $R_5$  and  $R_6$  being other than groups  $R'_1$ ,  $R'_2$  and  $R'_3$ ; and



in which:

$R_1$ ,  $R_2$ ,  $R_3$ ,  $R_5$  and  $R_6$  are defined as above;

$R'_4$  represents a halogen or a group  $OR_{11}$ ;

$R_7$  represents a halogen or a group  $OR_{10}$  or  $R''_1$ ;

$R_9$  represents a halogen or a group  $OR_8$ ,  $R''_2$  or  $R_3NR_1R_2$ ;

$R''_1$ ,  $R''_2$ ,  $R_8$ ,  $R_{10}$  and  $R_{11}$  represent a saturated or unsaturated, linear or branched hydrocarbon-based group optionally bearing additional chemical groups, the groups  $R_{11}$ ,  $R_{10}$  and  $R_8$  also possibly denoting hydrogen; at least one of the groups  $R_6$ ,  $R_7$  and  $R_9$  denoting a halogen or a group  $OR'''$ ,  $OR_{10}$  or  $OR_8$ .

6. The cosmetic composition as claimed in claim 5, characterized in that the groups  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R'$ ,  $R'_1$ ,  $R'_2$ ,  $R'_3$ ,  $R''$ ,  $R'''$ ,  $R''_1$ ,  $R''_2$ ,  $R_8$ ,  $R_{10}$  and  $R_{11}$  are chosen from  $C_1$  to  $C_{12}$  alkyl,  $C_5$  to  $C_{14}$  aryl, ( $C_1$  to  $C_8$ )alkyl( $C_5$  to  $C_{14}$ )aryl and ( $C_5$  to  $C_{14}$ )aryl( $C_1$  to  $C_8$ )alkyl radicals.
7. The composition as claimed in any one of the preceding claims, characterized in that the sulfuric acid salts are chosen from alkali metal sulfates and ammonium sulfate.
8. The composition as claimed in any one of the preceding claims, characterized in that it is a haircare product.
9. The composition as claimed in claim 8, characterized in that it is a haircare product for holding the hairstyle or shaping the hair.

## ABSTRACT

The invention concerns a composition comprising, in a cosmetically acceptable aqueous medium, at least 0.05 wt.% relative to the composition total weight, one or several water soluble organic silicon compounds, having one, two or three silicon atoms, at least a basic chemical function and at least two hydroxyl groups or capable of being hydrolysed per molecule, said organic silicon compounds being partly neutralised by a neutralising agent, selected among sulphuric acid, sulphuric acid salts and mixtures thereof. The invention is applicable to hairstyling compositions.

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NIXON & VANDERHYE P.C. (12/97)

RULE 63 (37 C.F.R. 1.63)  
DECLARATION AND POWER OF ATTORNEY  
FOR PATENT APPLICATION  
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

I, a below named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name, and I believe am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: Cosmetic composition based on partially neutralized, water-soluble unpolymerized or relatively unpolymerized organosilicon compounds.

I specify the specification of which (check applicable box(es)):

☐ is attached hereto

☐ was filed on

as U.S. Application Serial No.

☐ was filed as PCT international application No.

PCT/FR00/02416

on 1 September 2000

and (if applicable to U.S. or PCT application) was amended on

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose information which is material to the patentability of this application in accordance with 37 C.F.R. 1.56. I hereby claim foreign priority benefits under 35 U.S.C. 119/365 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed or, if no priority is claimed, before the filing date of this application:

Priority Foreign Application(s):

Application Number

99/11025

Country  
France

Day/Month/Year Filed  
2 September 1999

I hereby claim the benefit under 35 U.S.C. §119(e) of any United States provisional application(s) listed below.

Application Number

Date/Month/Year Filed

I hereby claim the benefit under 35 U.S.C. 120/365 of all prior United States and PCT international applications listed above or below and, insofar as the subject matter of each of the claims of this application is not disclosed in such prior applications in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose material information as defined in 37 C.F.R. 1.56 which occurred between the filing date of the prior applications and the national or PCT international filing date of this application:

For U.S./PCT Application(s):

Application Serial No.

Day/Month/Year Filed

Status: patented  
pending, abandoned

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon. And I hereby appoint NIXON & VANDERHYE P.C., 1100 North Glebe Rd., 8th Floor, Arlington, VA 20147-14, telephone number (703) 816-4000 (to whom all communications are to be directed), and the following attorneys thereof (of the same address) individually and collectively my attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith and with the resulting patent: Arthur R. Crawford, 25322; Larry S. Nixon, 25640; Robert A. Vanderhye, 27078; James T. Hosmer, 184; Robert W. Farris, 31352; Richard G. Besha, 22770; Mark E. Nusbaum, 32348; Michael J. Keenan, 32106; Bryan H. Davidson, 30251; Stanley C. Boner, 27393; Leonard C. Mitchard, 29009; Duane M. Byers, 33363; Jeffrey H. Nelson, 30481; John R. Lastova, 33149; H. Warren Burnam, Jr., 29366; Thomas E. Byrne, 32205; Mary J. Wilson, 32955; J. Scott Davidson, 33489; Alan M. Kagen, 36178; William J. Griffin, 31260; Robert A. Molan, 29834; J. Sadoff, 36663; James D. Berquist, 34776; Updeep S. Gill, 37334; Michael J. Shea, 34725; Donald L. Jackson, 41090.

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